

Age related changes in Hand grip strength and its association with ACE I/D gene polymorphism among adults: A cross-sectional study on Jat population of Haryana

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Abstract: The study investigated the association of ACE I/D gene polymorphism with age-related changes in hand grip strength among rural Jat males and females. The study was based on a sample of 221 Jat females and 91 males, in the age group 30 to 70 years. Hand grip strength was measured using dynamometer. Blood samples were collected; DNA was isolated, and amplified by PCR and genotyped using agarose gel electrophoresis. Age-related decline in hand grip strength was observed among rural Jat males and females. ACE insertion deletion locus was found to be polymorphic in the studied population. D allele carrying individuals (both ID and DD genotype) exhibited lower hand grip strength compared to that of individuals with II genotype. The distribution of ACE I/D genotypes in individuals with weak hand grip strength were found to be statistically significant. These significant differences were only observed among males possibly because of the over representation of DD genotype among individuals with weak grip strength. Odds ratio revealed 3.35 fold increased risk for weaker grip strength specifically in the right hand of males. Findings of the present study hint towards the possible beneficial role played by D allele, despite being responsible for the decreased grip strength among males.

Key words : Hand grip, Strength, Ageing, ACE I/D polymorphism, Age-related changes